

WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:
display means for displaying a moving image on
the basis of input image data;
- 5 designation means for designating a partial
region in a display screen of said display means; and
encoding means for encoding the image data,
wherein said display means displays a still image
of the moving image during designation by said
10 designation means, and
said encoding means encodes the image data with
an image included in the region designated by said
designation means of the moving image displayed by said
display means being decodable to have higher image
15 quality than an image of a non-designated region.
2. An image processing apparatus comprising:
display means for displaying a moving image on
the basis of input image data;
designation means for designating an object
20 included in the moving image displayed by said display
means; and
encoding means for encoding the image data,
wherein said display means displays a still image
of the moving image during designation by said
25 designation means, and
said encoding means encodes the image data with
an image indicating the object designated by said

designation means of the moving image displayed by said display means being decodable to have higher image quality than an image of a non-designated portion.

3. An image processing apparatus comprising:

5 display means for displaying a moving image on the basis of input image data;

designation means for designating a partial region in a display screen of said display means; and

encoding means for encoding the image data,

10 wherein said display means displays a still image of the moving image during designation by said designation means,

said encoding means comprises:

means for generating transform coefficients by 15 computing discrete wavelet transforms of the image data;

means for generating quantization indices by quantizing the transform coefficients; and

means for generating encoded data by decomposing 20 the quantization indices into bit planes, and executing arithmetic coding for the respective bit planes, and

said encoding means shifts up the quantization indices corresponding to an image included in the region designated by said designation means of the 25 moving image displayed by said display means by a predetermined number of bits.

4. An image processing apparatus comprising:

display means for displaying a moving image on the basis of input image data;

designation means for designating an object included in the moving image displayed by said display
5 means; and

encoding means for encoding the image data, wherein said display means displays a still image of the moving image during designation by said designation means,

10 said encoding means comprises:

means for generating transform coefficients by computing discrete wavelet transforms of the image data;

means for generating quantization indices by
15 quantizing the transform coefficients; and

means for generating encoded data by decomposing the quantization indices into bit planes, and executing arithmetic coding for the respective bit planes, and

20 said encoding means shifts up the quantization indices corresponding to an image indicating the object designated by said designation means of the moving image displayed by said display means by a predetermined number of bits.

5. The apparatus according to claim 1, wherein said
25 display means simultaneously displays the moving image and the still image of the moving image during designation by said designation means.

6. The apparatus according to claim 2, wherein said display means simultaneously displays the moving image and the still image of the moving image during designation by said designation means.

5 7. The apparatus according to claim 3, wherein said display means simultaneously displays the moving image and the still image of the moving image during designation by said designation means.

8. The apparatus according to claim 4, wherein said display means simultaneously displays the moving image and the still image of the moving image during designation by said designation means.

10 15 9. The apparatus according to claim 1, further comprising means for saving the encoded data generated by said encoding means.

10. The apparatus according to claim 2, further comprising means for saving the encoded data generated by said encoding means.

11. The apparatus according to claim 3, further 20 comprising means for saving the encoded data generated by said encoding means.

12. The apparatus according to claim 4, further comprising means for saving the encoded data generated by said encoding means.

25 13. The apparatus according to claim 1, further comprising image sensing means for generating the image data by sensing an image.

14. The apparatus according to claim 2, further comprising image sensing means for generating the image data by sensing an image.

15. The apparatus according to claim 3, further comprising image sensing means for generating the image data by sensing an image.

16. The apparatus according to claim 4, further comprising image sensing means for generating the image data by sensing an image.

10 17. The apparatus according to claim 1, wherein the image data is image data recorded in a recording medium.

18. The apparatus according to claim 2, wherein the image data is image data recorded in a recording medium.

19. The apparatus according to claim 3, wherein the image data is image data recorded in a recording medium.

15 20. The apparatus according to claim 4, wherein the image data is image data recorded in a recording medium.

21. A digital camera comprising:
image sensing means for generating image data by
20 sensing an image;
display means for displaying a moving image on
the basis of the image data;
designation means for designating a partial
region in a display screen of said display means;
25 encoding means for encoding the image data; and
means for saving the encoded data,

wherein said display means displays a still image of the moving image during designation by said designation means, and

5 said encoding means encodes the image data with an image included in the region designated by said designation means of the moving image displayed by said display means being decodable to have higher image quality than an image of a non-designated region.

22. A digital camera comprising:

10 image sensing means for generating image data by sensing an image;

display means for displaying a moving image on the basis of the image data;

15 designation means for designating an object included in the moving image displayed by said display means;

encoding means for encoding the image data; and means for saving the encoded data,

20 wherein said display means displays a still image of the moving image during designation by said designation means, and

25 said encoding means encodes the image data with an image indicating the object designated by said designation means of the moving image displayed by said display means being decodable to have higher image quality than an image of a non-designated portion.

23. A digital camera comprising:

image sensing means for generating image data by sensing an image;

display means for displaying a moving image on the basis of the image data;

5 designation means for designating a partial region in a display screen of said display means; encoding means for encoding the image data; and means for saving the encoded data, wherein said display means displays a still image

10 of the moving image during designation by said designation means,

15 said encoding means comprises: means for generating transform coefficients by computing discrete wavelet transforms of the image data;

means for generating quantization indices by quantizing the transform coefficients; and means for generating encoded data by decomposing the quantization indices into bit planes, and executing arithmetic coding for the respective bit planes, and

20 said encoding means shifts up the quantization indices corresponding to an image included in the region designated by said designation means of the moving image displayed by said display means by a predetermined number of bits.

24. A digital camera comprising:

image sensing means for generating image data by sensing an image;

display means for displaying a moving image on the basis of the image data;

5 designation means for designating an object included in the moving image displayed by said display means;

encoding means for encoding the image data; and means for saving the encoded data,

10 wherein said display means displays a still image of the moving image during designation by said designation means,

said encoding means comprises:

means for generating transform coefficients by

15 computing discrete wavelet transforms of the image data;

means for generating quantization indices by quantizing the transform coefficients; and

means for generating encoded data by decomposing

20 the quantization indices into bit planes, and executing arithmetic coding for the respective bit planes, and

said encoding means shifts up the quantization indices corresponding to an image indicating the object designated by said designation means of the moving

25 image displayed by said display means by a predetermined number of bits.

25. An image processing method comprising:

the display step of displaying a moving image on the basis of input image data;

the designation step of designating a partial region in a display screen in the display step; and

5 the encoding step of encoding the image data, wherein the display step includes the step of displaying a still image of the moving image during designation in the designation step, and

the encoding step includes the step of encoding

10 the image data with an image included in the region designated in the designation step of the moving image displayed in the display step being decodable to have higher image quality than an image of a non-designated region.

15 26. An image processing method comprising:

the display step of displaying a moving image on the basis of input image data;

the designation step of designating an object included in the moving image displayed in the display

20 step; and

the encoding step of encoding the image data, wherein the display step includes the step of displaying a still image of the moving image during designation in the designation step, and

25 the encoding step includes the step of encoding the image data with an image indicating the object designated in the designation step of the moving image

displayed by the display step being decodable to have higher image quality than an image of a non-designated portion.

27. An image processing method comprising:

5 the display step of displaying a moving image on the basis of input image data;

the designation step of designating a partial region in a display screen in the display step; and

the encoding step of encoding the image data,

10 wherein the display step includes the step of displaying a still image of the moving image during designation in the designation step,

the encoding step comprises:

15 the step of generating transform coefficients by computing discrete wavelet transforms of the image data;

the step of generating quantization indices by quantizing the transform coefficients; and

20 the step of generating encoded data by decomposing the quantization indices into bit planes, and executing arithmetic coding for the respective bit planes, and

25 the encoding step includes the step of shifting up the quantization indices corresponding to an image included in the region designated in the designation step of the moving image displayed by the display step by a predetermined number of bits.

28. An image processing method comprising:

 the display step of displaying a moving image on the basis of input image data;

 the designation step of designating an object

5 included in the moving image displayed in the display step; and

 the encoding step of encoding the image data, wherein the display step includes the step of displaying a still image of the moving image during

10 designation in the designation step,

 the encoding step comprises:

 the step of generating transform coefficients by computing discrete wavelet transforms of the image data;

15 the step of generating quantization indices by quantizing the transform coefficients; and

 the step of generating encoded data by decomposing the quantization indices into bit planes, and executing arithmetic coding for the respective bit

20 planes, and

 the encoding step includes the step of shifting up the quantization indices corresponding to an image indicating the object designated in the designation step of the moving image displayed by the display step

25 by a predetermined number of bits.

29. A program for making a computer function as:

display means for displaying a moving image on the basis of input image data;

designation means for designating a partial region in a display screen of said display means; and

5 encoding means for encoding the image data,

wherein said display means displays a still image of the moving image during designation by said designation means, and

10 said encoding means encodes the image data with an image included in the region designated by said designation means of the moving image displayed by said display means being decodable to have higher image quality than an image of a non-designated region.

30. A program for making a computer function as:

15 display means for displaying a moving image on the basis of input image data;

designation means for designating an object included in the moving image displayed by said display means; and

20 encoding means for encoding the image data,

wherein said display means displays a still image of the moving image during designation by said designation means, and

25 said encoding means encodes the image data with an image indicating the object designated by said designation means of the moving image displayed by said

display means being decodable to have higher image quality than an image of a non-designated portion.

31. A program for making a computer function as:

display means for displaying a moving image on
5 the basis of input image data;

designation means for designating a partial region in a display screen of said display means; and

encoding means for encoding the image data,
wherein said display means displays a still image
10 of the moving image during designation by said designation means,

15 said encoding means comprises:

means for generating transform coefficients by computing discrete wavelet transforms of the image
data;

means for generating quantization indices by quantizing the transform coefficients; and

means for generating encoded data by decomposing the quantization indices into bit planes, and executing
20 arithmetic coding for the respective bit planes, and

25 said encoding means shifts up the quantization indices corresponding to an image included in the region designated by said designation means of the moving image displayed by said display means by a predetermined number of bits.

32. A program for making a computer function as:

display means for displaying a moving image on the basis of input image data;

designation means for designating an object included in the moving image displayed by said display
5 means; and

encoding means for encoding the image data, wherein said display means displays a still image of the moving image during designation by said designation means,

10 said encoding means comprises:

means for generating transform coefficients by computing discrete wavelet transforms of the image data;

means for generating quantization indices by
15 quantizing the transform coefficients; and

means for generating encoded data by decomposing the quantization indices into bit planes, and executing arithmetic coding for the respective bit planes, and

20 said encoding means shifts up the quantization indices corresponding to an image indicating the object designated by said designation means of the moving image displayed by said display means by a predetermined number of bits.

33. An image processing apparatus comprising:

25 display means for displaying a moving image on the basis of input image data;

designation means for designating a partial region in a display screen of said display means;

encoding means for generating encoded data by encoding the image data;

5 storage means for storing the encoded data; and

decoding means for decoding the encoded data stored in said storage means,

wherein said display means displays a still image of the moving image during designation by said designation means,

10 said encoding means encodes the image data with an image included in the region designated by said designation means of the moving image displayed by said display means being decodable to have higher image quality than an image of a non-designated region,

15 said decoding means decodes encoded data at least from the beginning to the end of designation of the region by said designation means of the encoded data stored in said storage means, and

20 said encoding means re-encodes the decoded image data with an image corresponding to the region of an image that corresponds to the image data decoded by said decoding means being decodable to have higher image quality than an image of the non-designated region.

25 34. An image processing apparatus comprising:

display means for displaying a moving image on the basis of input image data;

designation means for designating an object included in the moving image displayed by said display
5 means;

encoding means for generating encoded data by encoding the image data;

storage means for storing the encoded data; and
decoding means for decoding the encoded data
10 stored in said storage means,

wherein said display means displays a still image of the moving image during designation by said designation means,

15 said encoding means encodes the image data with an image indicating the object designated by said designation means of the moving image displayed by said display means being decodable to have higher image quality than an image of a non-designated portion,

20 said decoding means decodes encoded data at least from the beginning to the end of designation of the object by said designation means of the encoded data stored in said storage means, and

25 said encoding means re-encodes the decoded image data with an image corresponding to the object of an image that corresponds to the image data decoded by said decoding means being decodable to have higher

image quality than an image of the non-designated region.

35. An image processing method comprising:

the display step of displaying a moving image on
5 the basis of input image data;

the designation step of designating a partial region in a display screen in the display step;

the encoding step of generating encoded data by encoding the image data;

10 the storage step of storing the encoded data; and
the decoding step of decoding the encoded data stored in the storage step,

wherein the display step includes the step of displaying a still image of the moving image during
15 designation in the designation step,

the encoding step includes the step of encoding the image data with an image included in the region designated in the designation step of the moving image displayed in the display step being decodable to have
20 higher image quality than an image of a non-designated region,

the decoding step includes the step of decoding encoded data at least from the beginning to the end of designation of the region in the designation step of
25 the encoded data stored in the storage step, and

the encoding step includes the step of re-encoding the decoded image data with an image

corresponding to the region of an image that corresponds to the image data decoded in the decoding step being decodable to have higher image quality than an image of the non-designated region.

5 36. An image processing method comprising:

the display step of displaying a moving image on the basis of input image data;

the designation step of designating an object included in the moving image displayed in the display

10 step;

the encoding step of generating encoded data by encoding the image data;

the storage step of storing the encoded data; and

the decoding step of decoding the encoded data

15 stored in the storage step,

wherein the display step includes the step of displaying a still image of the moving image during designation in the designation step,

the encoding step includes the step of encoding

20 the image data with an image indicating the object designated in the designation step of the moving image displayed in the display step being decodable to have higher image quality than an image of a non-designated portion,

25 the decoding step includes the step of decoding encoded data at least from the beginning to the end of

designation of the object in the designation step of the encoded data stored in the storage step, and

the encoding step includes the step of re-encoding the decoded image data with an image

5 corresponding to the object of an image that corresponds to the image data decoded in the decoding step being decodable to have higher image quality than an image of the non-designated region.

37. A program for making a computer function as:

10 display means for displaying a moving image on the basis of input image data;

designation means for designating a partial region in a display screen of said display means;

15 encoding means for generating encoded data by encoding the image data; and

storage means for storing the encoded data; and decoding means for decoding the encoded data stored in said storage means,

wherein said display means displays a still image 20 of the moving image during designation by said designation means,

said encoding means encodes the image data with an image included in the region designated by said designation means of the moving image displayed by said 25 display means being decodable to have higher image quality than an image of a non-designated region,

said decoding means decodes encoded data at least from the beginning to the end of designation of the region by said designation means of the encoded data stored in said storage means, and

5 said encoding means re-encodes the decoded image data with an image corresponding to the region of an image that corresponds to the image data decoded by said decoding means being decodable to have higher image quality than an image of the non-designated 10 region.

38. A program for making a computer function as:

 display means for displaying a moving image on the basis of input image data;

 designation means for designating an object 15 included in the moving image displayed by said display means;

 encoding means for generating encoded data by encoding the image data;

 storage means for storing the encode data; and 20 decoding means for decoding the encoded data stored in said storage means,

 wherein said display means displays a still image of the moving image during designation by said designation means,

25 said encoding means encodes the image data with an image indicating the object designated by said designation means of the moving image displayed by said

display means being decodable to have higher image quality than an image of a non-designated portion,

5 said decoding means decodes encoded data at least from the beginning to the end of designation of the object by said designation means of the encoded data stored in said storage means, and

10 said encoding means re-encodes the decoded image data with an image corresponding to the object of an image that corresponds to the image data decoded by said decoding means being decodable to have higher image quality than an image of the non-designated region.